

# The Importance of Women in the Conservation of the Rainforest of Mount Cameroon, Southwest Region, Cameroon

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## Abstract

Women have a special relationship with nature and therefore may be more likely to protect it and their effective involvement in rainforest conservation programs would increase efficiency. Unfortunately, gender discrimination in Cameroon has prevented and hindered maximum contribution of women on the effective management of the rainforest. However, this study is focused on the conservation role of women in the management of rainforest. The research data collection for this study was accomplished by administering two hundred and fifty questionnaires to a randomly selected population of women in the study area. The research results has shown a positive correlation association between profession and the proper management of the rainforest by women ( $R^2 = 0.623$ ,  $P < 0.05$ ). Moreover, the proper management of the rainforest by women and their participation has shown a significant association as well ( $\chi^2 = 6.446$   $df=2$ ,  $P < 0.05$ ). The contribution of women in the management of rainforest and their challenges have shown a significant link ( $\chi^2 = 12.732$   $df=6$ ,  $P < 0.05$ ). Furthermore, the survey has recorded a respondent score of 54.58% on the conservation of the rainforest as a key solution to its proper management. While women are seen as victims of environmental degradation, they are also to be considered as actors in the management process. Nevertheless, for sustainable forest management to be achieved, the recognition and inclusion of women in rainforest management activities is imperative.

**Keywords:** Women, Gender discrimination, Rainforest management, Conservation, Environmental degradation

## INTRODUCTION

Women have been noted as having a special relationship with the environment due to their responsibilities for the family and concern for the well-being of future generations (Westermann *et al.*, 2005). This special relationship is found often in the literature, but is largely ignored in conservation efforts (Jackson, 1993;). Studies investigating Community Based Conservation (CBC) programs have documented the lack of involvement by women and have shown that programs involving women have better outcomes than those without (Agarwal, 2009b; Soe and Sato, 2012). Groups with more women tend to have better collaboration, solidarity, and conflict resolution, because women tend to build more relational social capital than men (Westermann *et al.*, 2005). Agarwal (2009b) found that community forest groups with more women showed greater improvement in forest conditions on all indicators, with a 57% higher probability of improvement when the groups had two or more women. This reportedly was due to greater rule compliance, women's knowledge of plant species, more sustainable methods of resource harvest, and greater cooperation. Women were also found to have strong feelings of forest ownership and continued to monitor illegal activity while performing their daily work (Agarwal, 2009b). Because of the potential benefits of involving women, managers and organizations developing conservation programs are encouraged to include women in their design and implementation.

Deforestation and forest degradation are harmful to the environment, people, and wildlife (Board, 2005; Haines-Young and Potschin, 2010). Globally, forests are estimated to store 224 billion metric tons of carbon each year, and those that are degraded or cleared release 15-20% of the total annual global carbon emissions (Buis and Cole, 2011; FAO, 2011). By implementing conservation programs to reduce deforestation and degradation, the world's carbon emissions can be substantially reduced and the total global carbon stores increased (Soares-Filho *et al.*, 2010). Furthermore, increasing forest quality and quantity will provide more natural resources for local communities, increase and improve wildlife habitat, and possibly add to local economies through the sale of sustainably harvested resources. Tropical forests contain more than 50% of the world's species and are vital for the health of the global environment (Putz *et al.*, 2001). However, many tropical countries lack the capacity to manage forest resources (Berrett *et al.*, 2001). Empowering local communities to manage natural resources, as opposed to state or federal management, is often used in these countries to compensate for this reduced capacity. By creating conservation programs aimed at increasing the health and total area of tropical forests, we can potentially improve the local economies and the health of other species and help mitigate climate change.

Community-based conservation (CBC) is a people-centered approach to conservation that links

development and conservation goals (Berkes, 2004). Many CBC programs have been implemented in areas where national governments have legally empowered local communities to manage and conserve their natural resources due to the expense or lack of management capacity by the local government (Barrett *et al.*, 2001; Berkes, 2004). By incorporating local people in the sustainable management and conservation of the natural resources on which they rely, illegal deforestation and other degrading practices have been shown to decrease. This relationship between the biodiversity of the area and the livelihood of the local communities should provide an incentive for conservation (Brown, 2002), and many forest CBC programs have been shown to reduce deforestation rates compared to government managed areas. This is attributed to locally-relevant, culturally-appropriate, and enforceable regulations being set by the local communities rather than the government in a command-and-control management styles (Porter-Bolland *et al.*, 2012).

A well-designed CBC program, whose goal is forest enhancement and protection, could provide economic incentives through payments for ecosystem services or monetary benefits from participation in CBC activities, such as collecting, processing, and selling natural resources (Berkes, 2004). Franzen and Vogl (2013) concluded that wealthier countries have more environmental concern, suggesting that attention is pulled away from environmental issues in countries experiencing economic crises. Therefore, increasing an area's economic status, possibly through successful CBC programs, may eventually lead to individuals and groups placing a higher value on the environment and increasing conservation norms in the area.

Participatory approaches in forestry aim at devolving decision-making rights and benefits of forest resources to the rural people, usually goes with responsibilities of forest management (Vishakha *et al.*, 2003). This devolution of power is based on the prediction for greater efficiency in local resource management (INS, 2008). In Cameroon however, attempts to ensure sustainable management by involving stakeholders for human well-being has been complex due to issues arising such as participation (unequal access and control of productive resources), traditions and customs, cumbersome bureaucratic procedures, governance and transparency etc (Sikod, 2007; Kouami *et al.*, 2008).

The conservation of rainforest and its resources is very important for the earth planet to have a genetic pool perpetuation, ecological balance and resource sustainability management; hence the participation of both men and women is important. In the past, Cameroonian women were not empowered enough to have a say in this management sector but their education across many fields of study has revealed their essential in the involvement of natural resource management. This study is aimed at assessing the various ways women have contributed to the management of the rainforest in Buea municipality.

## MATERIALS AND METHODS

### Description of the study area

Buea municipality is situated between longitude 9° 16' E and latitude 4° 9' N (Fitton *et al* 1983). The municipality is bounded to the north by tropical forest on the slope of mount Cameroon (4100m above sea level). The mountain range extends to the beautiful sandy beaches of Atlantic Ocean. The town also shares boundary with other major towns like Limbe to the South West, Tiko to the South East, Muyuka to the East and Idenau to the West. With an equatorial climate, temperature is moderate with a slight seasonal variation in the wet and dry season. Buea has a moderate economy with agricultural, administrative, business, tourism and the financial sector taking the central stage of the town. The area is composed of undulating high and low lands with many rocks and gravels due to volcanic eruptions. The soil type consists of basalts and is as a result of the first volcanic activity in the Fako Mountain area, which occurred in the cretaceous system. These soils have been weathered and partly covered by more recent deposits, thus the soils are black and in these areas are well drained due to the hilly nature of the terrain and the fact that they are free-draining (Melle *et al* 2016).

The population is estimated at about 300,000 people of whom two-thirds live in urban and semi-urban areas, while the rest in villages. The settlement pattern forms a closed ring around the foot of the mountain with no permanent settlements on altitudes above 1500m. The indigenous people in the area are Bakweri, Bomboko, Balondo and Bakolle (Ekane, 2000). In all the villages, the population is expanding from both natural increase and immigration. These people are predominantly farmers, hunters, fishermen and traders. The region is also very diverse in fauna with over 370 species recorded. The sub-montane and montane habitats are part of the Cameroon Mountain Endemic Bird Area (EBA). So far, 210 species of birds have been record out of which 8 are threatened and 2 strictly endemic (Mt. Cameroon Francolin (*Francolinus camerunensis*) and the Mt. Cameroon Speirops (*Speirops melanocephalus*) Ekane (2000).

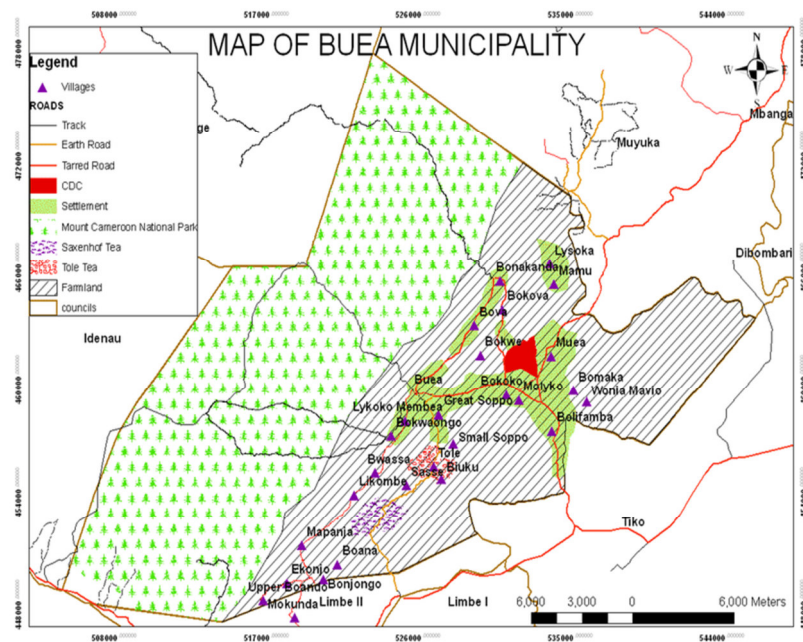


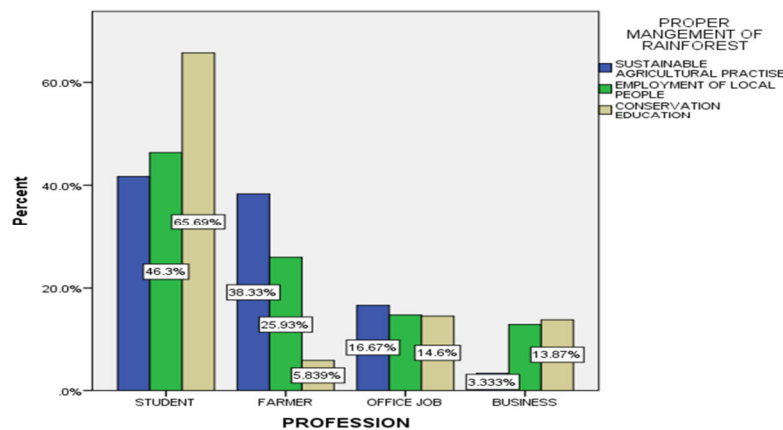
Fig.1: The map of Buea Municipality (Source: Melle et al, 2016)

### Data collection and analysis

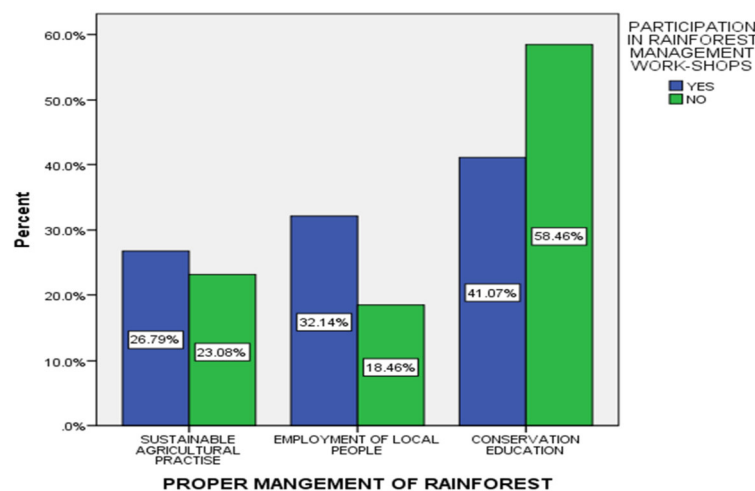
The research data collection for this study was done on two phases. The first phase involved the search for primary data used for the write-up; secondly the secondary data collection was launched just after the primary data was collected. The administration of two hundred and fifty questionnaires was done by randomly selecting a population of women involved in the rainforest management sector. Before questionnaires were administered to these women a research acknowledgement letter written by the University of Buea authority was handed to them. All the questionnaires handed to the respondents were returned barely a few days later. The quantitative demographic variables like profession and age category were used along with qualitative variables like the proper management of the rainforest, participation in rainforest management and the women's challenges in the rainforest management sector. The research data was analyzed by using SPSS version 20, specifically the Chi-square and correlation tools were used to examine associations between the variables.

### RESULTS

This study has revealed a positive correlation association between profession and the proper management of the rainforest by women ( $R^2 = 0.623$ ,  $P < 0.05$ ) fig.2. In the past women were never involved in rainforest conservation programs simply because of discrimination. Today, their participation is considered important because they are very educated, and many have even specialized in rainforest conservation. Their involvement in the management of the rainforest is also based on the increase rate of rainforest destruction, especially in the tropics, necessitating the participation of women for its management. The proper management of the rainforest by women and their participation has shown a significant association as well ( $\chi^2 = 6.446$   $df=2$ ,  $P < 0.05$ ) fig. 3. Some women have been well trained in schools in the domain of rainforest management and they have also proven to be very good trainers. Today, women are seen teaching rainforest management in many academic institutions, reinforcing conservation knowledge in the society. The women participation in conservation workshops both at the level of organization and training is seen in Cameroon very often.

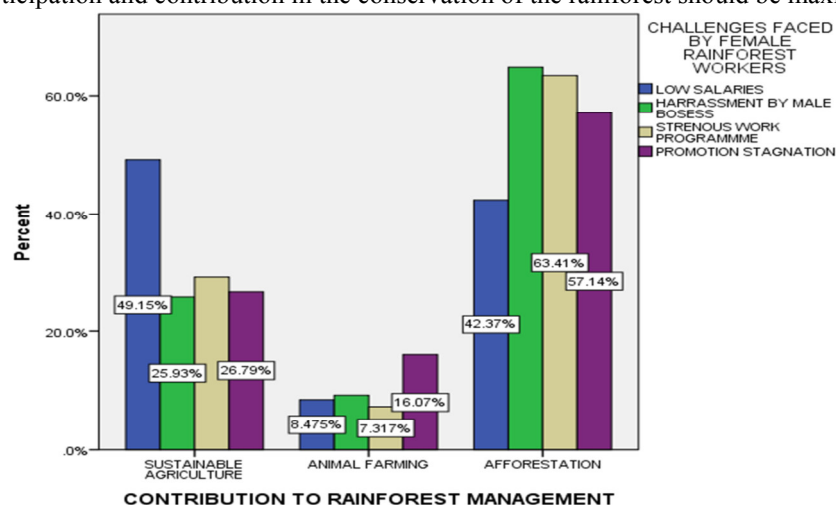


**Fig.2: Profession and the proper management of the rainforest by women**

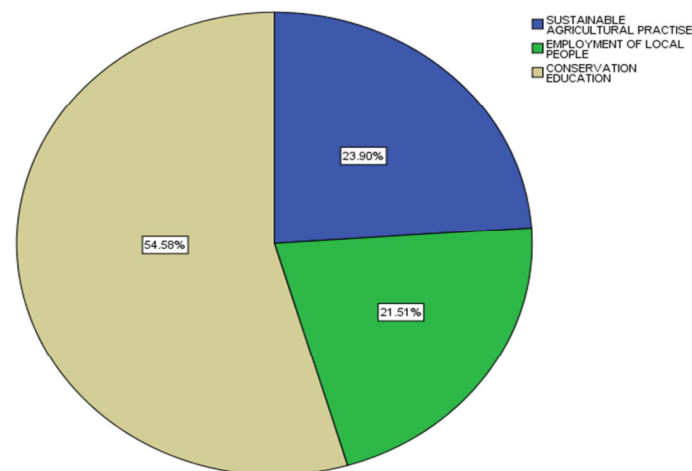


**Fig.3: Proper rainforest management and women's participation**

The contribution of women in the management of rainforest and the challenges they faced have shown a significant link ( $\chi^2 = 12.732$  df=6,  $P < 0.05$ ) fig. 4. Despite enormous challenges faced by women in the management of rainforest their participation is showing no sign of discouragement. Most women enjoy adventure and would want to perform more than their male colleagues in the conservation sector which has long been dominated by men. Moreover, most women believe in professional fighting to have equality in careers like the forestry sector which has long been dominated by men through the tradition of marginalization and suppression in all the societal structures of employment in Cameroon. And for them to achieve or win this position their participation and contribution in the conservation of the rainforest should be maximum.

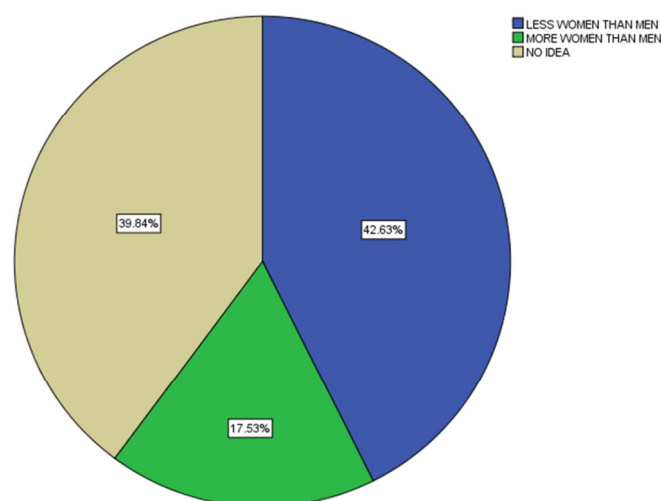


**Fig.4: The contribution of women in rainforest management and the challenges faced**



**Fig.5: Proper management of rainforest**

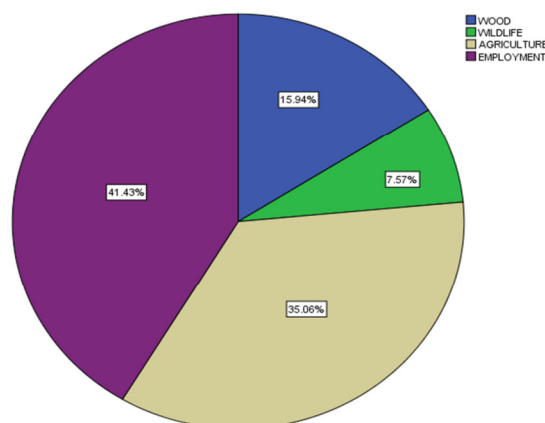
The survey has recorded a respondent score of 54.58% on the conservation of the rainforest as a key solution to its proper management (fig.5). The proper conservation of the rainforest is important in order to manage its wildlife and floral resources. Cameroon is in the Congo Basin Region, known to be the second richest rainforest in terms of biodiversity in the world. Though the rainforest of Cameroon is documented as one of the richest in Central African Region, its exploitation is alarmingly abusive. The rainforest is facing serious challenges at the level of timber exploitation, agriculture and hunting and very little or nothing is done to conserve its resources. The sustainable agricultural practice recorded a respondent score of 23.90% on the proper management of the rainforest. Sustainable agricultural practice places a heavy financial cost on the local farmers on the purchase of artificial fertilizers; this is believed to be challenging to the poor female farmers, who farm just to survive their families. The state government should play the role of helping these poor farmers by equipping them with fertilizers through financial supports in order to provide a security assurance to the montane forest of Mount Cameroon.



**Fig.6: Opinion on the number of female employees as compared to the males**

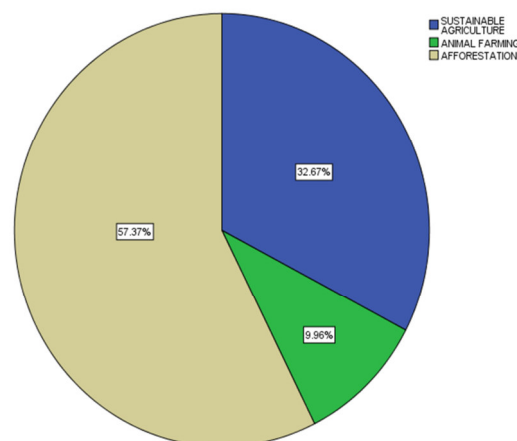
This study recorded a respondent score of 42.63% on the opinion of more male workers than the female in the rainforest conservation service sector (fig.6). In the past rainforest jobs were scaring female, for reasons that they are strenuous physically, especially staying off the family for a certain period of time for the forest field-work. Today job scarcity in Cameroon has been the main reason for which most women have taken interest in the profession. A respondent score of 39.84% is recorded on the lack of knowledge and interest on gender equality in the rainforest conservation sector.





**Fig.7: Settlement attraction**

The survey recorded a respondent score of 41.43% on employment, as the main reason of settlement for the women in Buea municipality (fig.7). Recent population statistics in Cameroon has shown an exodus movement of people from villages to the cities for the reason of greener pastures. Household management seems to pose challenges to many Cameroonians especially in the village communities where the financial flow is relatively low, pushing many couples to migrate to other parts of Cameroon or foreign countries where they would be capable to footing their household bills. In addition, agriculture recorded 35.06% on the settlement attraction reasons for the women. Buea soil is volcanic and fertile for agricultural activities, a profession known to be dominated by women.



**Fig.8: Contribution to rainforest management**

A respondent score of 57.37% is recorded on afforestation, as being the main contribution of women in the management of rainforest (fig.8). The interest of women for the re-afforestation of Cameroon might also be for the reason of fuel-wood used for domestic cooking. Of late, most women seem to have faced difficulties to have fuel-women in Buea municipality, and believe the solution is planting of trees that would be harvested in future for domestic consumption. Only a respondent score of 9.96% is recorded on animal-farming, as being contributive to rainforest conservation in Buea.

## DISCUSSION

According to Agrawal and Ostrom (2001), participation in the implementation of forest activities does not necessarily ensure effective participation in decision-making as effective participation requires that the people's views are effectively recognized and taken into consideration in the decision-making process. Most writers have acknowledged the participation of women in forest management activities but have indicated that their involvement in decision-making has so far been poorly represented. Women are either absent in the forest management committees or their role in decision-making is not influential enough (Buchy and Subba, 2003). Studies in Cameroon reveal low women participation in decision-making and bias strategy formulations at different organizational levels that have limited their abilities (Djeumo, 2001). Apart from the diversity of decision making levels, the socio-cultural fabric in developing countries and Cameroon in particular have portrayed glaring gender disparities in areas such as land tenure, relegating women to secondary roles thereby preventing them from participating fully in activities that

can help leverage households from poverty and inequality (World Bank, 2001; Endeley and Sikod, 2006; Fonjong, 2002). Although more than half of adult women in Cameroon are involved in the labour force, especially agriculture (World Bank, 2010), over 60% are still considered as unpaid family workers (UN DESA, 2007). These disadvantages on them as a result of their gender orientation further affect resource accessibility and allocation at the micro and macro levels of livelihoods (Sikod, 2006).

Ardayfio-Schandorf *et al.* (2007), point out that forestry has been a multidimensional field, with the historical legacy of male-dominated forest management. Despite the continuous and conscious effort towards the participation of all users, the active participation of the poor and marginalized (usually women) in forest management activities is quite low (Agarwal, 2001). According to Nkengla (2007), especially the poor and uneducated women are vulnerable as they are seen as “passive” observers rather than active participants in forest management issues. Thus, to mainstream gender in forest management, it is necessary to consider not only the low representation of women but also their power relations in decision-making on management issues (Moss, 2011).

Several authors have suggested that inclusion of women in forest management is necessary for efficiency and improved livelihoods (Agarwal, 2001; Sininoli *et al.*, 2002). According to Sen (2000), involving women in environmental projects require special efforts to extend their participation beyond the traditional roles accorded them. The relationship between sexes determines decisions and activities that in turn have effect on both management and utilization of the environment for sustainable development. Although, Cameroon has made substantial efforts towards promoting gender equality and women empowerment in various spheres in the country, women still faced enormous setbacks (Baye *et al.*, 2010).

According to the UN Millennium Development Goal Report (2006), the inability of the government of Cameroon in the attainment of the educational objectives on the promotion of gender equality and empowerment shows how slow the process has been. Cameroonian women comprise over 51 percent of the total population and yet between 2002-2006, they represented only 10% in parliament and ministerial positions and are even lower in decentralized administrations (FAO, 2007). The recognition of gender equality and women’s empowerment in forest management are fundamental for poverty alleviation, economic growth and sustainability. Women especially in the rural communities play a major role in fighting poverty and fostering development for their well-being (Feldstein and Jiggins, 1994; Fonjong 2001). According to Sikod (2007), about 93.5% of the rural population (mostly women) depends on agriculture for their livelihoods. Hence, forest degradation would have enormous impact on their livelihoods. In order to address the problems of livelihoods and sustainable forest management therefore, issues such as equal participation in forest management activities, access to and control over land and forest resources need to be clearly included in management strategies and poverty reduction schemes (Zuidberg, 1994; Mosse, 1994 and Fonchingong, 1999) so as to foster participation and livelihoods.

## CONCLUSION

This study has revealed the important role played by women in rainforest management in Buea municipality despite their marginalization from gender perspective. Although women, especially the poor from rural households are worst affected by environmental degradation in different ways, they on the other hand have not been recognized as agents in environmental protection and movements. Gender and environmental issues are seen glaringly in policy making in the management of resources especially in the area of decision-making and stakeholder involvement. While women are seen as victims of environmental degradation, they are also to be considered as actors in the management process. Hence, for sustainable forest management to be achieved, the recognition and inclusion of women in forest management activities is imperative.

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